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OH, WHAT A TANGLED WEB WE WEAVE:
CYBERBULLYING, ANXIETY, DEPRESSION, AND LONELINESS

A Thesis
presented in partial fulfillment of requirements
for the degree of Master of Arts
in the Department of Psychology
The University of Mississippi

By

KRISTEN LAPRADE JOHNSON

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ABSTRACT

Cyberbullying can be defined as any intentionally aggressive act occurring through electronic forms of communication. Drawing on literature examining traditional, face-to-face bullying, it is likely that this relatively contemporary form of victimization is associated with emotional distress. This has yet to be examined with any empirical rigor, however, as there are few studies of the construct. The present research assessed prevalence rates of cyberbullying in youth in North Mississippi using a psychometrically sound measure. These rates were found to be towards the higher end of previous studies (67.6% with exposure to cyberbullying and 6.3% with clinically elevated levels of cyberbullying). Additionally, the relationship between cyberbullying and several form of emotional distress (i.e., anxiety, depression, and loneliness) were examined. Cyberbullying was significantly, positively associated with levels of anxiety, depression, and loneliness. Furthermore, three hierarchal regressions demonstrated that cyberbullying remained a significant predictor of each form of emotional distress after controlling for overt and relational bullying accounting for 2.3% to 6.5% of the unique variance. Therefore, this study demonstrates that cyberbullying is a more significant problem facing youth than previous studies have indicated. This study also indicates that cyberbullying is significantly related to increases in emotional distress. Furthermore, statistical analyses suggest that cyberbullying is a distinct construct from traditional bullying and warrants further individualized research.

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LITERATURE REVIEW

Cyberbullying has often been defined as a straightforward electronic adaptation of traditional bullying (i.e., aggressive behaviors that are intentionally harmful to the targeted individual, repetitive, and are exuded in the context of social power imbalance; Dooley et al. 2009). The definition advanced by Smith and colleagues (2008) provides context for the way many researchers are thinking about cyberbullying as an alternate form of traditional bullying: “an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself” (2008, p. 376). Other researchers, however, suggest that factors such as power imbalance and serial repetition of aggression are much less important in technology-mediated communication than in face-to-face interactions. For example, Dooley and colleagues (2009) posited that repetition in cyberbullying could be as simple as a post, picture, or video being consistently on the Internet where the victim or others can access it multiple times. Thus, the anonymity of online interactions and the powerlessness of any individual to stop aggressive behaviors combine to create a context in which social power differential and the repeated nature of aggressive acts cease to be relevant in terms of behaviors indicative of bullying (Dooley et al., 2009). As such, the operational definition of cyberbullying utilized in the current study is any intentionally aggressive act occurring through electronic forms of communication (e.g., Facebook, text message, email, Yik Yak, Snapchat, etc.).

Research on cyberbullying is currently in its early stages, and it is useful to provide an overview of findings from studies examining traditional bullying for context concerning its similar effects. Primarily, research conducted over several decades has consistently demonstrated a negative relationship between bullying (or peer victimization) and psychological distress including anxiety, depression, and loneliness. In a contemporary meta-analysis of this work Reijntjes and colleagues (2010) examined the relationship between bullying and an array of internalizing problems. Their selection criteria were that studies were longitudinal and measured at least some aspects of internalizing problems specifically. Researchers determined that 15 studies (among over 200 examined) fit the overall criteria and were thus included in the meta-analysis. The authors' conclusions suggested that peer victimization strongly predicted internalizing problems such as anxiety, depression, and loneliness over time. More recent individual studies have expanded on this point to provide more information about the nature of etiology in the context of experiencing bullying in childhood or adolescence. For example, Van Oort and colleagues (2011) examined the relationship between bullying and anxiety in adolescents over a six-year time period in The Netherlands. Results indicated that adolescents who were victims of bullying experienced higher levels of anxiety across all time points measured, including into early adulthood. Loneliness has also been shown to be related to this relationship, in that there is evidence that it mediates the predictive relationship between bullying and depression (Baker and Bugay, 2011).

Thus, bullying has many psychological effects that have been researched thoroughly for years, as exemplified by the longitudinal studies cited above. Technological advancement has created a relatively new forum for bullying; however, the degree to which this experience is consistent with traditional bullying and its impact on developmental trajectory is unclear.

Although cyberbullying has not been studied as much as traditional bullying, preliminary research has lead many researchers to treat cyberbullying as a new, distinct construct (despite substantial overlap with traditional conceptualizations of bullying).

Smith and colleagues (2008) found that unlike traditional bullying, which occurs mostly in school, cyberbullying occurs most frequently outside of school. Since cyberbullying can occur anywhere a person has a computer or cell phone, going home after school does not offer the safety for victims that it does in relation to traditional bullying. Therefore, victims of cyberbullying could begin to perceive their harassment as inescapable, potentially more severe, and possibly qualitatively different. Another difference frequently discussed is the anonymity or perceived anonymity of the bully. The bully could in a sense hide behind a computer screen, phone, screen name, false email, etc. This could be seen as a way to free the bully from society's pressure to be kind or respectful to others in a way that is less possible in face-to-face interactions with victims. Anonymity could also increase fear and other distress in the victim, because he/she is unable to identify the bully, and thus unable to proactively respond to this event (Hinduja & Patchin, 2008). In a recent study adolescents rated this type of bullying as increasing emotional stress significantly more than traditional bullying, which the authors cited as possibly due to the potentially infinite online audience and/or the victim's inability to delete or remove embarrassing content (Slonje & Smith, 2008).

Dempsey and colleagues (2009) explored similar concepts through actuarial comparisons of cyberbullying and traditional forms of bullying. Specifically, this study consisted of a survey administered to 1,684 adolescents (ages 11-16). The questionnaire included the Revised Peer Experiences Questionnaire (RPEQ) for overt and relational victimization, four new cyberbullying questions created for this study, the Social Anxiety Scale for Adolescents (SAS-

A), and the Center for Epidemiology Studies Depression Scale (CES-D). The researchers compared the relationship between the three different types of bullying, and found the correlation between cyber and overt bullying ($r = .27$) and cyber and relational bullying ($r = .31$) were both significant ($p = .01$). Hierarchical regression analyses predicting social anxiety, controlling for gender and both relational and overt bullying, indicated that cyberbullying was a unique, significant predictor of symptoms. The conclusions formed were that cyberbullying represented a distinct construct separate from traditional bullying, and one that had potential impact on etiology of emotional difficulties.

Although many researchers agree that cyberbullying should be conceptualized and studied as a distinct concept, some leading researchers in traditional bullying argue that this form of aggression is not distinct. Olweus (2012), for example, makes the argument that while cyberbullying should be studied, traditional bullying is still the most important area of research. Cyberbullying is thus conceptualized in this way as a small problem that represents a specific subset of more general bullying behaviors. Further, Olweus (2012) indicated that the base rate of this form of bullying and its impact have been exaggerated by media. The former criticism can be examined empirically even in the limited set of studies available on cyberbullying as a distinct construct. Previous epidemiological estimations have yielded a wide variety of base rates that are on average 10-15% (Hinduja & Patchin, 2013; Agastan et al, 2013; Kowalski & Limber, 2007; Wang et al, 2009), but as high as 72% (Juvonen & Gross, 2008). It is important to note that this wide variability across the few extant studies was produced without aid of a strongly researched instrument to assess cyberbullying, and thus Olweus' criticisms are not entirely refuted by these publications. Additionally, it should be noted that Olweus (2012) explicitly indicated that

cyberbullying deserves individualized research despite criticisms and misgivings concerning the proliferation of ideas about this construct.

Cyberbullying and Distress

Guided by logical associations observed in traditional bullying literature some researchers have investigated the relationship between cyberbullying and psychological distress. For example, Juvonen and Gross (2008) conducted an online survey of 1,454 youth from 30 different states concerning their typical interactions via the Internet. Participants were asked to complete measures assessing online behaviors and experiences, bullying experiences (both traditional and cyber), and social anxiety. Using a hierarchical regression, the researchers found that cyberbullying tended to be related to elevated levels of social anxiety independently of traditional bullying's impact on this form of distress. Conclusions thus bolster the assertion that cyberbullying is an independent construct and point toward areas of relative emotional salience that could be affected by its experience.

In another study Aricak (2009) examined the relationship between cyberbullying and broad psychological distress in 695 undergraduate students in Turkey. General distress was assessed by the Symptom Check List-90-Revised (SCL-90-R) and cyberbullying was captured through a 5-question survey designed specifically for this study. Researchers differentiated between bullies, victims, and bully-victims, which were defined as follows: bullies referred to adolescents who cyberbully other people through mean posts, texts, emails, etc.; victims were depicted as the adolescents bullied by others; and bully-victims represented the group that both bullied other people and were the target of similarly hurtful behavior themselves. The authors' findings showed that victims of cyberbullying (including bully-victims) reported significantly higher levels of global anxiety than participants who reported no involvement in cyberbullying

as a bully or a victim. Similar examinations have yielded consistent results indicating significant associations between cyberbullying and anxiety (Dempsey et al., 2009; Kowalski et al., 2014).

Additionally, cyberbullying has been shown to be associated with other forms of psychological distress. For example, Kowalski and colleagues (2012) studied the correlation between cyberbullying and both anxiety and depression. Participants included 931 students from the 6th – 12th grades. The study comprised youth answering self-report measures such as the Beck Depression Scale for youth, the Beck Anxiety Scale for youth, and a bullying questionnaire containing a shortened version of the Olweus Bullying Questionnaire. The latter was adapted to include two additional questions for cyberbullying, but without explanation for these items' inclusion or psychometric examination of their performance. The results showed significant correlations between both cyberbullying and victimization and anxiety and depression.

Another study conducted by Bonanno and Hymel (2013) focused on the relationship between different types of bullying, depression, and suicidal ideation. The sample consisted of 399 students from 8th – 10th grades. This study also used a modified version of the Olweus Bullying Questionnaire that included adaptations to assess 4 specific types of bullying (i.e., physical, verbal, social, and cyber). Participants also completed the CES-D and the Suicidal Ideation Questionnaire-Junior. Results showed significant correlations between cyberbullying and both depression and suicidal ideation. The researchers conducted a hierarchical regression analysis on depression controlling for gender, physical victimization, verbal victimization, social victimization, and cyber victimization. This was repeated for gender and the different types of bullying on depression. They found a unique impact of cyberbullying on depression ($p < .05$; $R^2_{\text{changed}} = .02$) and cyber-victimization on depression ($p < .05$; $R^2_{\text{changed}} = .01$) after controlling for the other forms of bullying and victimization. Additionally, the researchers found that

physical bullying and victimization did not have a statistically significant impact on depression symptomology. Conclusions strengthen the theory that cyberbullying is distinct from traditional forms of bullying, while adding to the evidence to the relationship between cyberbullying and depression.

Additionally, a very recent study (Feinstein et al., 2014) implemented prospective methods to investigate potential causal relationships between cyberbullying and emotional distress. The researchers recruited 620 undergraduate students to participate in a study that included administration of two identical surveys separated by three weeks. These surveys included a measure of cyberbullying designed by the authors, the Depression, Anxiety, and Stress Scale-21-item version (DASS-21), and the Ruminative Response Scale (RRS). The cyberbullying measure consisted of four yes or no questions (two for online harassment and two for text messaging). Participants were classified as victims if they answered yes to any one of the four questions. Results suggested that exposure to cyberbullying was associated with an increase in depressive symptoms between time points after controlling for baseline levels of depression. Although this is not a randomized design illustrative of true causality, these longitudinal findings in a naturalistic setting suggest the potential for further etiological work relating these constructs. Indeed, some extant studies have found evidence consistent with the conclusion that cyberbullying is significantly related to depression in a way that may ultimately demonstrate causal contributions (Chang et al, 2012; Vollink et al, 2013; Kowalski et al, 2012; Reijntjes et al, 2010; Aricak, 2009; Ortega et al, 2012; Perren et al, 2010, Raskauskas & Stoltz, 2007).

Cyberbullying might also be related to loneliness, which in turn is known to be associated with depression, anxiety, and difficult peer interactions (Cacioppo et al, 2006). Although literature on this relationship is limited, Sahin (2012) conducted a study that focused solely on

the connection between loneliness and cyberbullying. The researcher surveyed 389 children in a secondary school in Turkey using a study-specific adaptation of a Turkish cyberbullying measure and a Turkish version of the UCLA Loneliness Scale. Results showed a significant correlation between being the victim of cyberbullying behavior and loneliness, although the magnitude of this relationship was not large ($r = .104$). The study suffered from limitations, including limited operational definitions of its constructs and a lack of explication about measurement strategies. In terms of the latter, the author cited the cyberbullying measure employed as derived and adapted from Topçu (2010), and labeled it the Cyberbullying Scale. Consultation of the primary source indicated that this measure in turn was derived and adapted from Erdur & Kavşut (2007), where it was labeled the Cyberbullying Inventory. At every stage of adaptation across these studies psychometric investigation of the new instrument was effectively absent beyond computation of basic reliability. Given confusion in nomenclature and limited evidence for the utility of the main outcome measure, therefore, work in this area could benefit from implementation of a more evidence-based measure of cyberbullying. Regardless, this study represented the only preliminary evidence that could be located examining a relationship between cyberbullying and loneliness. More data are therefore needed to add to this area of research.

In a recent meta-analysis, Kowalski and colleagues (2014) examined how cyberbullying is related to traditional bullying and psychological distress. The analysis was conducted on 161 empirical studies about cyberbullying. The meta-analysis conducted in this study examined cyberbullying, traditional bullying, risk factors, protective factors, and outcomes. In the initial analysis, the researchers found that cyber victimization (those who are bullied online) was positively correlated with depression, anxiety, loneliness, and other forms of distress or

problems. The authors noted that as cyber victimization increased so did individuals' ratings of emotional distress. Additionally, anxiety was found to be both a risk factor and an outcome of cyberbullying from the limited longitudinal evidence that could be gathered. This review article provided a succinct summation of the current research on cyberbullying, and offered direction for how that research can be related to the broader scope of bullying in general. The authors of this paper emphasize the importance for further research, and particularly cited the need for a psychometrically sound measure of cyberbullying. The present study seeks to enact this recommendation in conducting studies similar to those included in the meta-analysis through implementation of a published, psychometrically sound measure of cyberbullying (Kowalski et al 2014).

Summary and Current Study

As outlined above, cyberbullying shares similarities with traditional bullying, but research has shown that the construct also has several important distinctions. First, cyberbullying offers more anonymity to a bully than typical for face-to-face interpersonal interactions seen in traditional bullying. Second, cyberbullying could seem inescapable to victims, as bullies can essentially engage in these behaviors from anywhere at any time and through multiple media sources. Third, traditional bullying limits the audience to people physically close to the attack and/or recipients of negative verbalizations, whereas cyberbullying may have an infinite reach in terms of audience (Bonanno & Hymel, 2013). Thus, cyberbullying represents a distinct construct that has recently been shown to be related to psychological distress such as depression, anxiety, and loneliness (Kowalski et al, 2014). However, there is very limited research on the connection between cyberbullying and the above-mentioned psychological stressors. Also, this small collection of studies has been conducted without implementation of a uniform, empirically-sound

measurement for cyberbullying. In most cases cyberbullying has been assessed by an instrument created for an individual study, which was utilized without examination of its psychometric properties. Therefore, the present study seeks to use scientifically sound measures to assess prevalence rates of cyberbullying in North Mississippi and investigate the relationship between cyberbullying and psychological distress in the form of depression, anxiety, and loneliness. Guided by associations evident in traditional bullying research and the limited findings in more contemporary cyberbullying research, it is hypothesized that cyberbullying will be significantly related to emotional distress.

METHODS

Participants

The present sample comprised 5th to 12th grade students in north Mississippi (N=757) who completed an anonymous survey at school. First, results were analyzed for missing data, and participants with more than 5% missing data (N= 22, 2.9%) were excluded from the study. With regards to the remaining 735 participants, 691 individuals had no missing data points (94.0%), 41 individuals had 1 missing data point (5.6%), and 3 individuals had 2 missing data points (.4%). To check for patterns, Little's Missing Completely At Random (MCAR) analysis was conducted for the individual subscales using SPSS Missing Values Analysis. MCAR was not significant for the subscales, which indicates that there is no pattern to the missing data points. After confirming data were missing completely at random, maximum likelihood estimation was used to impute the missing data points.

Next, to assess for multivariate outliers, each subscale was regressed on a random number to get Mahalanobis distance for each case. Multivariate outliers more than three standard deviations from the mean (i.e., $p < .001$) were removed from the analysis (N=54, 7.3%). The final sample size consisted of 681 students with demographics included in Table 1. Due to researcher error in survey administration, information concerning participant gender was not collected. G*Power was used to perform a priori power analysis with a power of .80, which resulted in an estimated samples size of 43 (Faul et al. 2007).

Table 1
Demographics

Race/Ethnicity	Frequency	Percentage
African American	90	12.2%
Asian	5	0.7%
Caucasian	550	74.8%
Hispanic	65	8.8%
Other	21	2.9%
Age	Mean	SD
	13.73	2.27

Measures

Cyberbullying Scale (CBS; Stewart, Drescher, Maack, Ebesutani, & Young, 2014). The Cyberbullying Scale is a psychometrically sound measure of cyberbullying in youth. The scale contains a total of 16 questions, including two general questions assessing technological media in which children had been bullied or used to bully others (e.g., text message, social media, e-mail, etc.). The remaining 14 questions provide children with a 5-point Likert-type scale to rate how often they have experienced different types of cyber-victimization in the past few months, with higher scores indicating greater levels of experiences. Data from the instrument development study (Stewart et al., 2014) indicated a unitary factor structure and yielded strong internal consistency reliability across both middle and high school students ($\alpha = .94$). Reliability of the instrument specific to this study was also strong ($\alpha = .90$).

Revised Child Anxiety and Depression Scale - Short Form (RCADS-SF; Ebesutani et al., 2012). The RCADS-SF is a shortened version of the RCADS (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000), which is a widely disseminated measure of anxiety and depression in youth ages 7 - 17. The RCADS-SF applied modern measurement procedures to the full-length

version to arrive at a subset of 25 questions comprising broadband assessment of anxiety and depression. Respondents are asked to rate how much a statement applies to them from “never” to “always” (which are coded 0 to 3 for scoring). Reliability estimates for the anxiety ($\alpha = .96$ for clinically referred children and $\alpha = .94$ for children referred by the school) and depression ($\alpha = .80$ for clinically referred children and $\alpha = .79$ for children referred by the school) subscales were established as being in the adequate to high range in the initial instrument development study (Ebesutani et al., 2012). This measure demonstrated strong reliability specific to this study ($\alpha = .91$).

Loneliness Questionnaire-Short Form (LQ-SF- Ebesutani et al., 2012). The LQ-SF is a shortened version of the original, 24-item questionnaire (Asher, Hymel, & Renshaw, 1984). Using in-depth item analysis, the LQ-SF shortened the longer form of the instrument to 9 questions directly assessing loneliness (primarily by removing reverse worded questions and filler questions). Respondents were asked to rate how true a statement is about them using a 3-point Likert-type scale ranging from “always true” to “not true at all.” Consistent with its development, all items are coded 1 to 3 for scoring, with higher scores indicating lower levels of loneliness. Internal consistency reliability estimates for the child cohort ($\alpha = .87$) and adolescent cohort ($\alpha = .92$) were determined to be in the adequate to high range for the developmental study (Ebesutani et al., 2012). This measure demonstrated strong reliability specific to this study ($\alpha = .87$).

Child Social Experience Questionnaire (CSEQ; Crick & Grotpeter, 1996). The CSEQ is a 15-item questionnaire designed to measure relational victimization, overt victimization, and prosocial behavior (Crick & Grotpeter, 1996). Each subscale consisted of 5 questions with relatively high factor loadings (ranging from .66 to .81). Participants were asked to rate the

frequency of experience on a 5- point Likert-type scale ranging from “Never” to “All the time” (which are coded 1 to 5 for scoring). Reliability estimates for the relational victimization ($\alpha = .80$), overt victimization ($\alpha = .78$), and pro-social behaviors ($\alpha = .77$) subscales were established in the adequate to high range in the initial instrument development study. This measure demonstrated strong reliability specific to this study ($\alpha = .88$).

Internet Use Behavioral Checklist. (Appendix A) Several brief questions will be used to gather information regarding the child’s access to Internet, computers, and smart phones.

Procedure

Middle and high schools in northeast Mississippi were recruited to participate by contacting school principals or other key administrative personnel in a given district. Upon meeting with a school representative the purposes and procedures of the survey were explained (detailed further below). Copies of all questions contained in the survey (Appendix A) were provided, as well as an example version of the passive consent document (Appendix B). Additionally, schools were offered the opportunity to receive feedback on the basis of their students’ results, which was designed to occur rapidly after data collection (i.e., approximately 2 – 3 weeks). This enabled schools to make immediate use of survey results, and aided in developing relationships with schools studied.

One middle school and one high school agreed to participate in the study. Passive consent forms (Appendix B) describing the study were sent home with each child at least one week prior to the intended date of survey. This form instructed parents who did not want their children to participate to send back the form with a signature to indicate their lack of consent. The school administration compiled a list of students who declined to participate, and no surveys were given to those students on the day of study. Other students were surveyed in their classrooms with the

assistance of their teachers. A specific set of instructions was given to teachers to read aloud (Appendix C). A research assistant from the SITH lab was present at each school during the administration of the survey to ensure that those who did not consent did not receive a survey, as well as to assist with any other questions or issues. After data were collected and analyzed for base rates a follow-up meeting was scheduled with interested schools to discuss results and possible implications.

RESULTS

Means, standard deviations, and correlations are included in Table 2. Overall, 67.6% of participants reported exposure to cyberbullying in the past few months (64.7% in middle school and 69.1% in high school). Additionally, 6.3% reported clinically significant levels of cyberbullying as determined by the cutoff scores from the CBS. The percentage of youth reporting any exposure to cyberbullying was higher than that reporting exposure to traditional forms of bullying (54.1% overt bullying and 58.4% relational). Furthermore, a substantial number of students reported clinically significant psychosocial distress (4.6% lonely, 5.2% depression, 5.3% anxiety). Correlation analyses showed strong relationships between cyberbullying and all three forms of distress, as well as between individual domains of distress and various forms of bullying (see Table 2). These correlations were notably consistent across both age groups despite somewhat variable levels of reported experiences, indicating that the observed relationships are not likely to be a function of age.

Table 2
Correlations

	Overt Bullying	Relational Bullying	Loneliness	Cyber- bullying	Depression	Anxiety
Middle School						
Overt Bullying	--					
Relational Bullying	.799**	--				
Loneliness	-.585**	.620**	--			
Cyberbullying	.547**	.673**	-.520**	--		
Depression	.592**	.587**	-.663**	.448**	--	
Anxiety	.593**	.616**	-.595**	.520**	.779**	--
Mean	7.670	8.147	24.218	4.978	6.108	9.479
SD	3.616	3.964	2.898	7.010	4.906	6.941
High School						
Overt Bullying	--					
Relational Bullying	.771**	--				
Loneliness	-.489**	-.613**	--			
Cyberbullying	.664**	.775**	-.598**	--		
Depression	.465**	.584**	-.680**	.602**	--	
Anxiety	.546**	.649**	-.672**	.697**	.823**	--
Mean	7.419	8.010	24.049	6.785	6.421	8.821
SD	3.685	4.146	3.853	9.509	5.964	7.672
Total						
Overt Bullying	--					
Relational Bullying	.780**	--				
Loneliness	-.510**	-.611**	--			
Cyberbullying	.621**	.738**	-.580**	--		
Depression	.499**	.585**	-.676**	.565**	--	
Anxiety	.561**	.639**	-.648**	.461**	.808**	--
Mean	7.504	8.056	24.106	6.173	6.315	9.044
SD	3.661	4.083	3.557	8.780	5.627	7.434

** p< .01

In order to test the hypothesis that cyberbullying would be significantly related to emotional distress, three separate regressions were conducted to investigate the predictive relationship between cyberbullying and the three forms of distress (anxiety, depression, and loneliness). In all analyses, cyberbullying was a significant predictor of each form of distress and accounted for a significant percentage of variance. Cyberbullying was a significant predictor of anxiety (R^2 change = .377, $B = 0.665$, $\beta = 0.614$; $p < 0.001$); depression (R^2 change = .288, $B = 0.757$, $\beta = 0.536$; $p < 0.001$); and loneliness (R^2 change = .270, $B = -1.135$, $\beta = -0.519$; $p < 0.001$).

Therefore, increased exposure to cyberbullying predicted higher levels of anxiety, depression and loneliness.

Additionally, given the debate in current research in determining cyberbullying as a distinct form of social aggression, these regressions were repeated while controlling for traditional bullying (as measured by the CSEQ). Three separate, two-stage hierarchical regressions were conducted with anxiety, depression, and loneliness as the dependent variables. The first step regressed each form of distress (anxiety, depression, loneliness) on relational and overt bullying. Subsequently, cyberbullying was entered into the analysis in the second step. Cyberbullying remained a significant predictor after controlling for traditional bullying in all three regressions (see Table 3). Both forms of traditional bullying were significant predictors for all three forms of distress in step 1 of each model; however, overt bullying was not a significant predictor of depression when cyberbullying was included in the analysis. Furthermore, cyberbullying explained 4.9% of the unique variance when predicting depression. In regards to anxiety as the dependent variable, cyberbullying accounted for 6.5% of the unique variance. Finally, cyberbullying explained 2.3% of the unique variance in predicting loneliness. These results provide evidence that cyberbullying is a unique predictor of emotional distress beyond the contributions of traditional bullying.

Table 3
Hierarchical Regressions

		B	β	t	R²	ΔR^2
Anxiety						
Step 1					.363	.363
	Overt Bullying	.491	.215	4.839***		
	Relational Bullying	.848	.428	9.604***		
Step 2					.428	.065
	Overt Bullying	.323	.141	3.285**		
	Relational Bullying	.418	.211	4.310***		
	Cyberbullying	.346	.375	8.762***		
Depression						
Step 1					.277	.277
	Overt Bullying	.233	.133	2.808**		
	Relational Bullying	.642	.421	8.883***		
Step 2					.326	.049
	Overt Bullying	.121	.069	1.474		
	Relational Bullying	.355	.233	4.386***		
	Cyberbullying	.231	.326	7.017***		
Loneliness						
Step 1					.323	.323
	Overt Bullying	-.153	-.135	-2.946**		
	Relational Bullying	-.455	-.463	-10.085***		
Step 2					.346	.023
	Overt Bullying	-.103	-.093	-1.987*		
	Relational Bullying	-.329	-.335	-6.400***		
	Cyberbullying	-.101	-.221	-4.838***		
*** p<.001	** p<.01	*p<.05				

DISCUSSION

The present study investigated the prevalence rate of cyberbullying and its association with three forms of psychosocial distress in a large sample of middle and high school students. Results demonstrated that 67.6% of students reported some encounter with cyberbullying, while 6.3% experienced clinically significant cyberbullying. Additionally, cyberbullying was a strong predictor of anxiety, depression, and loneliness, accounting for a large percentage of variance in all three forms of distress when considered as the sole predictor (37% of anxiety, 28% of depression, and 27% of loneliness). This relationship remained significant even after controlling for traditional forms of bullying (relational and overt) contributing evidence to the argument that cyberbullying is a distinct construct from traditional forms of bullying (although the two constructs are significantly related).

Previous research regarding cyberbullying has been limited due to the lack of an empirically sound measure of cyberbullying and varying definitions of cyberbullying. Using a psychometrically-sound measure, the present study found cyberbullying base rates to be towards the higher end of those notable in previous studies (67.6%). This base rate, derived from more established instrumentation than previous studies, indicates that cyberbullying is a common experience among youth. Contextually, this suggests that previous studies may have conferred an underrepresentation of cyberbullying occurrences due to imprecise measurement. As such, it is possible that cyberbullying is a much larger problem than research has indicated to date. Additionally, the clinically elevated rates of

cyberbullying in this sample (6.3%) indicated that cyberbullying is a serious problem for a significant percentage of youth. Although small, this amount is non-negligible and there is a potential need for the development of resources for those experiencing greatly elevated levels of cyber-victimization.

In addition to demonstrating that cyberbullying is fairly common in youth, the present study found a strong relationship between cyberbullying and emotional distress (anxiety, depression, and loneliness). This means that youth experiencing more cyberbullying were also experiencing more loneliness, anxiety, and depression (often at clinically significant levels). Thus, cyberbullying and emotional distress may be linked in a way that has deleterious effects, which is particularly problematic given its high base rate.

Finally, it was notable that cyberbullying remained a significant predictor of distress when controlling for traditional forms of bullying. Although the constructs are related (as measured by correlations in this sample), there are some key differences (i.e., increased anonymity for the bully; cyberbullying is not bound by a location; potentially infinite audience; etc.) that lead researchers to suggest studying these as distinct phenomena (Smith et al, 2008). The careful calibration of measurement in the current study contributes evidence to this area of research to suggest that cyberbullying is a distinct construct. This may guide future research in this area to examine cyberbullying as distinct from traditionally bullying, including new intervention and prevention methods for youth enduring cyber-victimization.

This conclusion is also somewhat out of sync with previous research in this area, which has frequently concluded that cyberbullying is a minor problem that is effectively a variation on traditional bullying. Although this distinction awaits replication in subsequent studies using similarly stringent methods of measurement, it is an important one in terms of implications for

treatment. For example, if cyberbullying represents a distinct, heretofore poorly understood construct, intervention could be hindered when conducted using programs designed for traditional bullying. Additionally, understanding the relationship of cyberbullying with multiple forms of traditional bullying becomes more nuanced when they are considered as separate constructs. For example, when cyberbullying was added to this study's model for depression, overt bullying was no longer a significant predictor of distress. Therefore, in this sample relational bullying and cyberbullying could represent stronger predictors of emotional distress than overt bullying (and this relationship could be further complicated by measurement of additional constructs).

Limitations and Future Directions

There were some limitations to this study. First, gender was inadvertently omitted from the survey packet. Therefore, the present analyses do not include gender as a factor. Previous research has found no differences in rates of cyberbullying across gender (although more research is needed; Stewart et al., 2014), suggesting that this inadvertent exclusion is likely not detrimental to the utility of the current results. Additionally, the establishment of an overall base rate in a large sample is a contribution to the literature, with or without differentiation by gender. Regardless, inquiry into the potential differences in experiences as a function of gender would be a useful focus of future research. This could include gender differences in rates of victimization and perpetuation, controlling for gender in the original model (cyberbullying and distress), and gender as a potential moderator.

Additionally, this study was conducted in rural Mississippi, so cyberbullying rates could be higher in a region with greater access to Internet, computers, or smart phones. According to census data from 2013, Mississippi is significantly lower than the national average on technology

factors, with 80% having a computer in the home and 62.3% having high-speed Internet access (File & Ryan, 2014). Furthermore, the total percentage of Mississippi with no computer at home and no Internet use anywhere (26.8%) was significantly lower than all other states. The census data from 2011 indicated that Mississippi was also significantly lower than the national average on reported smartphone use (File, 2013). Although these facets of the local environment could limit generalizability of the results, they also provide perspective on the potential magnitude of these problems. That is, the high base rate of cyberbullying and its association with distress are more salient considering that many in the current sample may not have accessed the relevant technologies at all. Future research would benefit from examining cyberbullying in a more urban area to assess for differences in victimization and perpetuation across geographic region, socioeconomic status, and availability of advanced technology and Internet.

Furthermore, more research should be conducted to learn more about the motivation behind and methods of cyberbullying with particular emphasis on building strategies for prevention/intervention. The lab that conducted this study is in the process of designing a measure of attitudes about cyberbullying. If this construct can be reliably measured, such an instrument could aid in understanding the broader social context related to these experiences (e.g., what makes cyberbullying socially acceptable; what situations of bullying are deemed wrong; what factors predict when cyberbullying will be accepted or reinforced vs. rejected by a given social group). In turn, this understanding may translate to etiological, prevention, and/or intervention studies designed to limit the occurrence and negative impact of cyberbullying.

Likewise, research could begin investigating mediating or moderating variables in cyberbullying experience and distress. This could include knowledge of appropriate behavior online, monitoring by parents, age, attitude about cyberbullying, and many more potential

variables. The present study demonstrates that cyberbullying has a strong relationship with distress, but conducting mediation and moderation studies would allow researcher to discover more detail about the nature of that relationship. Conducted longitudinally, this data would allow researchers to approximate causative relationships between cyberbullying and distress in the long term.

Finally, given the extremely high base rate of exposure to cyberbullying, and the strong relationship between cyberbullying and psychosocial distress, development and examination of an intervention program for youth could be useful in the future. The lab that conducted this study is currently piloting such a program based on principle of social diffusion (e.g., Rogers, 2003). In effect, this intervention seeks to change the perception of cyberbullying to be considered ‘lame’ or ‘not cool’ from youths’ perspective. In this study, students with social influence were identified through a sociometric nomination by their peers and recruited to join a Cyberbullying Leadership team (CBL). This group meets weekly for sessions that include discussion of rapport building exercises, explanation of the CBT model of emotions, basic CBT skills (cognitive restructuring, empathy, and perspective taking), internet safety, and practical skills to deal with cyberbullying instances. The meetings are interactive, relying on the participation of the students to learn more about cyberbullying and how to best decrease cyberbullying behaviors. It is intended that the students in this group then talk about this information to their peers, and that subsequently cyberbullying rates will decrease in the whole school.

In conclusion, this study utilized psychometrically-sound measures of cyberbullying, traditional bullying, and emotional distress to demonstrate that cyberbullying is a significant problem in youth. Additionally, cyberbullying was associated with emotional distress beyond

the impact of traditional bullying. This study provides a strong basis for future research given its use of empirically valid measures and large sample size. Future research should continue to investigate cyberbullying in terms of its effects longitudinally, methods of assisting youth who are victimized, and strategies for intervention and prevention.

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LIST OF APPENDICES

APPENDIX A: SURVEY

1. Age: _____
2. What is your race?
 - a. African American/Black
 - b. Asian
 - c. Caucasian/White
 - d. Hispanic/Latino/Latina
 - e. Other
3. How many people live in your house?
 - a. 2 – 3
 - b. 4 – 5
 - c. 6 – 7
 - d. 8 – 9
 - e. 10 or more
4. Does one or more of your real (biological) parents live at home with you?
 - a. Yes, both real (biological) parents
 - b. Yes, real (biological) mother only
 - c. Yes, real (biological) father only
 - d. No, I do not live with either of my real (biological) parents
5. Do you have a stepparent who lives at home with you?
 - a. Yes, stepmother
 - b. Yes, stepfather
 - c. No, no stepparents live at home with me
6. How many close friends do you have?
 - a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4 or more

The following questions ask about your life in the **PAST FEW MONTHS**. Please circle the best answer.

1. Do other kids use any of the following to bully you? (Circle all that have happened to you)

Email	Online video clips of you
Text messages/Twitter	Social networking site (like Facebook)
Picture messages	Chatroom
Instant messaging	Virtual world (like Second Life or the Sims)
Developed a mean website or message board about you	

2. Do you use any of the following to bully other kids? (Circle all that you have used to bully)

Email	Online video clips
Text messages/Twitter	Social networking site (e.g. Facebook)
Picture messages	Chatroom
Instant messaging	Virtual world (like Second Life or the Sims)
Developed a mean website or message board about another kid	

3. How often do you get online or text messages from another kid threatening to beat you up or hurt you physically?

Never Almost Never Sometimes Almost all the time All the time

4. How often do other kids leave you out of online groups on purpose?

Never Almost Never Sometimes Almost all the time All the time

5. How often does another kid say something mean to you (like calling you names or making fun of you) in a text message or online?

Never Almost Never Sometimes Almost all the time All the time

6. How often does a kid who is mad at you try to get back at you by not letting you be in their online group anymore?

Never Almost Never Sometimes Almost all the time All the time

7. How often do you get text or online messages that make you afraid for your safety?

Never Almost Never Sometimes Almost all the time All the time

8. How often does a kid tell lies about you in texts or online to make other kids not like you anymore?

Never Almost Never Sometimes Almost all the time All the time

9. How often does another kid say online that they won't like you unless you do what they want you to do?

Never Almost Never Sometimes Almost all the time All the time

10. How often does a kid try to keep others from liking you by texting or posting mean things about you?

Never Almost Never Sometimes Almost all the time All the time

11. How often does another kid send you a message saying they will beat you up if you don't do what they want you to do?

Never Almost Never Sometimes Almost all the time All the time

12. How often do you get in online fights?

Never Almost Never Sometimes Almost all the time All the time

13. How often does another kid put you down online by sending or posting cruel gossip, rumors, or something else hurtful?

Never Almost Never Sometimes Almost all the time All the time

14. How often does another kid pretended to be you and send or post something that damages your reputation or friendships?

Never Almost Never Sometimes Almost all the time All the time

15. How often does another kid share your personal secrets or images online without your permission?

Never Almost Never Sometimes Almost all the time All the time

16. How often have you had to ask an adult to help fix something bad that happened to you online (like a mean picture of you was posted, people called you names, someone threatened you)?

Never Almost Never Sometimes Almost all the time All the time

17. I feel sad or empty. ☐

Never Sometimes Often Always

18. I worry when I think I have done poorly at something. ☐

Never Sometimes Often Always

19. I would feel afraid of being on my own at home. ☐

Never Sometimes Often Always

20. Nothing is much fun anymore. ☐

Never Sometimes Often Always

21. I worry that something awful will happen to someone in my family. ☐

Never Sometimes Often Always

22. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy
☐playgrounds). ☐

Never Sometimes Often Always

23. I worry what other people think of me. ☐

Never Sometimes Often Always

24. I have trouble sleeping. ☐

Never **Sometimes** **Often** **Always**

25. I feel scared if I have to sleep on my own. ☐

Never **Sometimes** **Often** **Always**

26. I have problems with my appetite. ☐

Never **Sometimes** **Often** **Always**

27. I suddenly become dizzy or faint when there is no reason for this. ☐

Never **Sometimes** **Often** **Always**

28. I have to do some things over and over again (like washing my hands, cleaning or putting
☐things in a certain order). ☐

Never **Sometimes** **Often** **Always**

29. I have no energy for things. ☐

Never **Sometimes** **Often** **Always**

30. I suddenly start to tremble or shake when there is no reason for this. ☐

Never **Sometimes** **Often** **Always**

31. I cannot think clearly. ☐

Never **Sometimes** **Often** **Always**

32. I feel worthless. ☐

Never **Sometimes** **Often** **Always**

33. I have to think of special thoughts (like numbers or words) to stop bad things from
☐happening. ☐

Never **Sometimes** **Often** **Always**

34. I think about death. ☐

Never Sometimes Often Always

35. I feel like I don't want to move. ☐

Never Sometimes Often Always

36. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of. ☐

Never Sometimes Often Always

37. I am tired a lot. ☐

Never Sometimes Often Always

38. I feel afraid that I will make a fool of myself in front of people. ☐

Never Sometimes Often Always

39. I have to do some things in just the right way to stop bad things from happening. ☐

Never Sometimes Often Always

40. I feel restless. ☐

Never Sometimes Often Always

41. I worry that something bad will happen to me. ☐

Never Sometimes Often Always

42. I have nobody to talk to.

Always True Sometimes True Not True at All

43. It's hard for me to make friends.

Always True Sometimes True Not True at All

44. It's hard to get other kids to like me.

Always True Sometimes True Not True at All

45. I don't have anyone to play with.

Always True Sometimes True Not True at All

46. I feel left out of things.

Always True Sometimes True Not True at All

47. There's nobody I can go to when I need help.

Always True Sometimes True Not True at All

48. I don't get along with other children.

Always True Sometimes True Not True at All

49. I'm lonely.

Always True Sometimes True Not True at All

50. I don't have any friends.

Always True Sometimes True Not True at All

51. Do you use the internet?

A. Yes B. No

52. Do you have an email account?

A. Yes B. No

53. Do you text message?

A. Yes B. No

54. Do you have a Twitter account?

A. Yes B. No

55. Do you have an account with a social networking site like Facebook, Google Plus, Tumblr, etc.?

A. Yes B. No

CSEQ

Please answer the following questions.

56. How often does another kid give you help when you need it?

Never Almost Never Sometimes Almost all the time All the time

57. How often do you get hit by another kid at school?

Never Almost Never Sometimes Almost all the time All the time

58. How often do other kids leave you out on purpose when it is time to play or do an activity?

Never Almost Never Sometimes Almost all the time All the time

59. How often does another kid yell at you and call you mean names?

Never Almost Never Sometimes Almost all the time All the time

60. How often does another kid try to cheer you up when you feel sad or upset?

Never Almost Never Sometimes Almost all the time All the time

61. How often does a kid who is mad at you try to get back at you by not letting you be in their group anymore?

Never Almost Never Sometimes Almost all the time All the time

62. How often do you get pushed or shoved by another kid at school?

Never Almost Never Sometimes Almost all the time All the time

63. How often does another kid do something that makes you feel happy?

Never Almost Never Sometimes Almost all the time All the time

64. How often does a classmate tell lies about you to make other kids not like you anymore?

Never Almost Never Sometimes Almost all the time All the time

65. How often does another kid kick you or pull your hair?

Never Almost Never Sometimes Almost all the time All the time

66. How often does another kid say they won't like you unless you do what they want you to do?

Never Almost Never Sometimes Almost all the time All the time

67. How often does another kid say something nice to you?

Never Almost Never Sometimes Almost all the time All the time

68. How often does a kid try to keep others from liking you by saying mean things about you?

Never Almost Never Sometimes Almost all the time All the time

69. How often does another kid say they will beat you up if you don't do what they want you to do?

Never Almost Never Sometimes Almost all the time All the time

70. How often do other kids let you know that they care about you?

Never Almost Never Sometimes Almost all the time All the time

APPENDIX B: CONSENT FORM

(Date)

Hello Parents,

We will be handing out a brief (10 – 20 minute) survey during class time on (insert date). This survey will ask questions about things your child might have experienced, including anxiety, anger, and difficult experiences. All surveys will be completed without names attached, so no one can ever match your child's answers to him/her personally. As concerned parents and citizens, we want to make sure that our children's educational, behavioral, and emotional development are supported by attending to these needs as much as we can. We feel that in order for any child to have optimum learning, it is critical that they are physically and mentally healthy. That is why we have partnered with the University of Mississippi to bring this survey to our school. The information collected will be used by the university for research focused on improving mental health and the educational process for young people everywhere (but especially here at home in Mississippi). The results of that research will be made available to our school through a feedback meeting, as well as to any parent who asks.

Although there is no direct benefit to any one person taking this survey, the information collected will help support a better educational environment for everyone. What we learn may also help to improve the existing services offered by school nurses, health educators, guidance counselors, teachers, administrators, and all other people with our children's best interests at heart. It is possible that some students may feel uncomfortable answering some of the questions. To minimize this risk all students will be told that they are free to skip any questions they want or discontinue at any time. If for some reason you would prefer that your child not participate in this survey, please return the attached "opt out" slip to your school's front office. If you do not return this slip refusing permission, your child will be asked to complete the survey. Your family's participation is completely voluntary, and if you refuse there will not be a penalty of any kind. If you have any questions or concerns, please do not hesitate to call your school, Dr. Young, or the University's Institutional Review Board (which approved this survey). Their contact information is listed at the bottom of this page, and they will be happy to answer any questions you might have.

Sincerely,

(school information)

John Young, Ph.D.

University of Mississippi
jnyoung1@olemiss.edu
662-915-1775

Office of Research and Sponsored
Programs
University of Mississippi
irb@research.olemiss.edu
662-915-7482

BEHAVIORAL VITAL SIGNS SURVEY

PARENT REQUEST TO OPT OUT
OF SURVEY PARTICIPATION

STUDENT'S NAME:	
GRADE LEVEL:	
HOMEROOM TEACHER:	
SCHOOL SITE:	

_____ I do NOT want my child to participate in this project.

Parent/Guardian Signature

Date

*THIS FORM MUST BE RETURNED TO THE SCHOOL COUNSELOR
NO LATER THAN (insert date).*

APPENDIX C: INSTRUCTIONS FOR TEACHERS

Instructions for teachers:

Someone will be standing by to assist you should you or your students have questions. You can ask for the psychology survey staff in the main office if you need help.

Please read the following statement aloud to your class AFTER you have handed out the survey materials, but BEFORE allowing students to begin.

“Today you are going to answer some questions about your thoughts, feelings, and behaviors. Everyone in the school has been asked to complete this brief survey. *Do not write your name on anything.* Start at number 1 and go in order without skipping any. If anyone has any questions during the survey please raise your hand. When you have finished please turn your surveys over on your desk. I’ll collect them after everyone is done.”

After all students have finished please call the front office and we will come around to pick up your materials. Thank you for your cooperation and assistance! Should you have any questions about this project please contact the principal or one of the assisting researchers in the front office.

VITA

KRISTEN LAPRADE JOHNSON

kglaprad@go.olemiss.edu

EDUCATION

B.A, Psychology, The University of Mississippi, May 2014
Honors Thesis: ADHD and Working Memory

RESEARCH EXPERIENCE

Research Assistant 2014- present
S.I.T.H. Lab
The University of Mississippi

PUBLICATIONS AND PRESENTATIONS

Johnson, K (2015). *Oh, what a tangled web we weave: Cyberbullying, anxiety, depression, and loneliness*. Poster presented at the annual convention of the Association of Behavior and Cognitive Therapists in Chicago, IL.